

Adding + Subtracting

$$\left(\frac{d}{d}\right)\frac{a}{b} + \frac{c}{d}\left(\frac{b}{b}\right) = \frac{da+cb}{bd} \quad \begin{matrix} b \neq 0 \\ d \neq 0 \end{matrix}$$

p. 66

2. a) $\frac{3}{8} \quad \frac{5}{72}$ $\textcircled{72}$

$8 \quad 8 \cdot 9$

c) $\frac{2}{3x^2} \quad \frac{5}{6x}$ $\textcircled{6x^2}$

$3 \cdot x \cdot x \quad 3 \cdot 2 \cdot x$

Tyler
||

e) $\frac{5}{6x} \quad \frac{13}{4x-8}$ $12x(x-2)$

$4(x-2)$

f) $\frac{5}{x-3} \quad \frac{+2}{3-x}$

\swarrow
 $\rightarrow x-3$

g) $\frac{10}{27x^3} \quad \frac{5}{9x-45}$ $27x^3(x-5)$

$9(x-5)$

\nearrow

h) $\frac{1}{4x-8} \quad \frac{-3}{x^2+2x-8}$ $4(x-2)(x+4)$

$(x+4)(x-2)$

$$3. \ a) \ \frac{3x}{x+1} + \frac{3}{x+1} = \frac{3x+3}{x+1} = \frac{3(\cancel{x+1})}{\cancel{x+1}} = \boxed{3}$$

$$g) \ \frac{2z}{3z-1} + \frac{-z}{\cancel{1-3z}} = \frac{z}{3z-1}$$

$$h) \ \frac{x^2}{x^2-y^2} + \frac{y^2}{x^2-y^2} + \frac{-2xy}{\cancel{y^2} \cancel{x^2} \atop x^2-y^2} = \frac{x^2-2xy+y^2}{x^2-y^2} = \frac{(x-y)(\cancel{x-y})}{(x+y)(\cancel{x-y})} = \frac{x-y}{x+y}$$

$$o) \ \frac{x+a}{x(a+b)+y(a+b)} - \frac{x-b}{x(a+b)+y(a+b)} = \frac{x+a-(x-b)}{(a+b)(x+y)} = \frac{\cancel{x}+a-\cancel{x}+b}{(a+b)(x+y)} = \frac{a+b}{(a+b)(x+y)} = \frac{1}{x+y}$$

$$4. \ c) \ \frac{4z}{z^2-36} - \frac{2(\cancel{z+6})}{z-\cancel{6}(\cancel{z+6})} = \frac{4z-2z-12}{(z+6)(z-6)} = \frac{\cancel{2}(\cancel{z-6})}{\cancel{2}z-12} = \frac{2}{(z+6)(\cancel{z-6})} = \frac{2}{z+6}$$

$$g) \frac{x+1}{x^2-x-6} - \frac{2(x+2)}{x-3(x+2)} = \frac{x+1-2x-4}{(x-3)(x+2)} \\ = \frac{-x-3}{(x-3)(x+2)}$$

$$t) \frac{a}{(b-a)(c-a)} + \frac{b}{(b-c)(a-b)} + \frac{-c}{(a-c)(c-b)} \\ \frac{a}{(b-a)(c-a)} + \frac{b}{(b-c)(a-b)} + \frac{-c}{(c-a)(b-c)}$$

$$\cancel{ab-ac} + \cancel{bc-ab} - \cancel{bc+ac} + \cancel{ac} \\ \frac{a(b-c) + b(c-a) - c(b-a)}{(b-a)(c-a)(b-c)} = \text{😊}$$

Final Exam

August 10 → in class

2 hrs

56 Q all multiple choice / 56

Mixed Operations + - ÷ ×

BEDMAS
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p. 74

$$1. a) \frac{5}{x} - \left(\frac{3}{x^3} \div \frac{2}{x} \right) \\ \frac{3}{x^2} \cdot \frac{x}{2}$$

$$\left(\frac{2x}{2x} \right) \frac{5}{x} - \frac{3}{2x^2} = \frac{10x-3}{2x^2}$$

$$j) \frac{2x^2}{x-1} - \frac{2x^2-7x+3}{x-3} \cdot \frac{x+2}{x-1}$$

$$\frac{2x^2}{x-1} - \left[\frac{(2x-1)(x-3)}{(x-3)} \cdot \frac{(x+2)}{(x-1)} \right]$$

$$\frac{2x^2 - (2x-1)(x+2)}{x-1}$$

$$\frac{\cancel{2x^2} - (\cancel{2x^2} + 3x - 2)}{x-1} = \frac{-3x+2}{x-1}$$

p. 75

$$2. \quad c) \frac{8x^4y^3}{3x}$$

$$\frac{4xy^4}{y^2}$$

$$= \frac{\cancel{8}^2 \cancel{x}^2 y^3}{3x} \cdot \frac{y^4}{\cancel{4}^2 \cancel{x}^2 y^4} = \frac{2x^2y}{3}$$

$$g) \left(\frac{z^2}{z^2} \right) - \left(\frac{z}{z} \right) \frac{4}{z} + \frac{4}{z^2} = \frac{z^2 - 4z + 4}{z^2}$$

$$\left(\frac{z}{z} \right) \frac{1}{z^2} - \frac{2}{z^3}$$

$$\frac{z-2}{z^3} \quad \curvearrowright$$

$$\frac{(z-2)(\cancel{z-2})}{\cancel{z^2}} \cdot \frac{\cancel{z^3}}{\cancel{z-2}} = z(z-2)$$

$$h) \left(\frac{y^2}{y^2} \right) \frac{4}{x^2} - \frac{12xy}{xy(xy)} + \frac{9}{y^2} \left(\frac{x^2}{x^2} \right) \quad \frac{4y^2 - 12xy + 9x^2}{\cancel{x^2y^2}}$$

$$\frac{\left(\frac{y^2}{y^2} \right) 4}{x^2} - \frac{9}{y^2} \left(\frac{x^2}{x^2} \right) \quad \frac{4y^2 - 9x^2}{\cancel{x^2y^2}}$$

$$\frac{(2y-3x)(2y-3x)}{(2y-3x)(2y+3x)} = \frac{2y-3x}{2y+3x}$$

p. 77 4. $T = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2}} = \frac{1}{\frac{R_2 + R_1}{R_1 R_2}} = \frac{R_1 R_2}{R_2 + R_1}$

5. $i = \frac{E}{R + \frac{r}{2}}$

$\boxed{R} \quad i(R + \frac{r}{2}) = E$

$$R + \frac{r}{2} = \frac{E}{i}$$

$\checkmark R = \frac{E}{i} - \frac{r}{2}$

\boxed{r}

$\checkmark R = \frac{2E - ri}{2i}$